



SOUTH FLORIDA  
WATER MANAGEMENT DISTRICT

# Alternatives 1, 2, 3, and 4 Water Quality Analysis

Draft 10/04/07

# Water Quality Summary

- For the period from 1991-2005
  - Average annual phosphorus loading= 514 metric tons
  - Average annual phosphorus concentration= 163 ppb
- Phosphorus TMDL for Lake Okeechobee
  - 140 metric tons 5-year rolling average
  - 35 metric tons attributed to atmospheric deposition
  - 105 metric tons allowable from all surface water inflows

# Summary of Phosphorus Loading with Alternative 1

<b>Load reduction from Level 1 and 2 Management Measures</b>	<b>-239 mt</b>
<b>Load reduction from remaining Alternative 1 Management Measures</b>	<b>-62 mt</b>
<b>Total Load Reduction from Alternative 1</b>	<b>-301 mt</b>

<b>Initial Annual Average P Load</b>	<b>514 mt</b>
<b>TMDL Allocation</b>	<b>-105 mt</b>
<b>Remaining Load</b>	<b>409 mt</b>
<b>Load reduction from Alternative 1</b>	<b>-301 mt</b>
<b>Remaining Load To Be Addressed</b>	<b>108 mt</b>

# Summary of Phosphorus Loading with Alternative 2

<b>Load reduction from Alternative 1</b>	<b>-301 mt</b>
<b>Load reduction from remaining Alternative 2 Management Measures</b>	<b>-15 mt</b>
<b>Total Load Reduction from Alternative 2</b>	<b>-316 mt</b>

<b>Initial Annual Average P Load</b>	<b>514 mt</b>
<b>TMDL Allocation</b>	<b>-105 mt</b>
<b>Remaining Load</b>	<b>409 mt</b>
<b>Load reduction from Alternative 2</b>	<b>-316 mt</b>
<b>Remaining Load To Be Addressed</b>	<b>93 mt</b>

# Summary of Phosphorus Loading with Alternative 3

<b>Load reduction from Alternative 1</b>	<b>-301 mt</b>
<b>Load reduction from remaining Alternative 3 Management Measures</b>	<b>-63 mt</b>
<b>Total Load Reduction from Alternative 3</b>	<b>-364 mt</b>

<b>Initial Annual Average P Load</b>	<b>514 mt</b>
<b>TMDL Allocation</b>	<b>-105 mt</b>
<b>Remaining Load</b>	<b>409 mt</b>
<b>Load reduction from Alternative 3</b>	<b>-364 mt</b>
<b>Remaining Load To Be Addressed</b>	<b>45 mt</b>

# Summary of Phosphorus Loading with Alternative 4

<b>Load reduction from Alternative 1</b>	<b>-301 mt</b>
<b>Load reduction from remaining Alternative 4 Management Measures</b>	<b>-59 mt</b>
<b>Total Load Reduction from Alternative 4</b>	<b>-360 mt</b>

<b>Initial Annual Average P Load</b>	<b>514 mt</b>
<b>TMDL Allocation</b>	<b>-105 mt</b>
<b>Remaining Load</b>	<b>409 mt</b>
<b>Load reduction from Alternative 4</b>	<b>-360 mt</b>
<b>Remaining Load To Be Addressed</b>	<b>49 mt</b>

# Phosphorus Results Summary

	<b>Load Reduction in Lake Inflows</b>	<b>Reduction to In- Lake Load</b>
<b>Alternative 1</b>	<b>301 mt</b>	<b>0 mt</b>
<b>Alternative 2</b>	<b>316 mt</b>	<b>36 mt</b>
<b>Alternative 3</b>	<b>364 mt</b>	<b>0 mt</b>
<b>Alternative 4</b>	<b>360 mt</b>	<b>74 mt</b>

# Phosphorus Reduction estimate in Upper Kissimmee

**Initial Load= 91 metric tons**

- **BMPS\*\*-**
  - Owner implemented= -7 mt
  - Cost-Share BMPs= -8 mt
  - Additional Ag BMPs= -7 mt
  - BMPs Total= -22 mt
- **Level 1 and 2 Management Measures= -13 mt**
- **Remaining Alternative 1 Management Measures= -4 mt**
- **Total Alternative 1 Load Reduction= -17 mt\*\***

**Load Remaining After Alternative 1= 74 metric tons**

**\*\*- Reductions from implementing BMPs is not included in total load reduction due to buffering effects of intervening lake**

# Phosphorus Reduction estimate in Upper Kissimmee

	<b>Load Reduction (mt)</b>	<b>Remaining Load (mt)</b>
<b>Alternative 1</b>	<b>-17</b>	<b>74</b>
<b>Alternative 2</b>	<b>-27*</b>	<b>65</b>
<b>Alternative 3</b>	<b>-17*</b>	<b>74</b>
<b>Alternative 4</b>	<b>-31*</b>	<b>60</b>

\* - includes Alternative 1 load reduction

# Phosphorus Reduction estimate in Lower Kissimmee

**Initial Load= 77 metric tons**

- **BMPs-**
  - Owner implemented= -10 mt
  - Cost-Share BMPs= -21 mt
  - Additional Ag BMPs= -8 mt
  - **BMPs Total= -39 mt**
- **Level 1 and 2 Management Measures= -18 mt**
- **Remaining Alternative 1 Management Measures= -8 mt**
- **Total Alternative 1 Load Reduction= -63 mt**

**Load Remaining After Alternative 1= 14 metric tons**

# Phosphorus Reduction estimate in Lower Kissimmee

	<b>Load Reduction (mt)</b>	<b>Remaining Load (mt)</b>
<b>Alternative 1</b>	<b>-63</b>	<b>14</b>
<b>Alternative 2</b>	<b>-63*</b>	<b>14</b>
<b>Alternative 3</b>	<b>-63*</b>	<b>14</b>
<b>Alternative 4</b>	<b>-63*</b>	<b>14</b>

\* - includes Alternative 1 load reduction

# Phosphorus Reduction estimate in Taylor Creek/Nubbin Slough

**Initial Load= 124 metric tons**

- **BMPs-**
  - Owner implemented= -12 mt
  - Cost-Share BMPs= -27 mt
  - Additional Ag BMPs= -13 mt
  - **BMPs Total= -52 mt**
- **Level 1 and 2 Management Measures= -30 mt**
- **Remaining Alternative 1 Management Measures= -15 mt**
- **Total Alternative 1 Load Reduction= -98 mt**

**Load Remaining After Alternative 1= 26 metric tons**

# Phosphorus Reduction estimate in Taylor Creek/Nubbin Slough

	<b>Load Reduction (mt)</b>	<b>Remaining Load (mt)</b>
<b>Alternative 1</b>	<b>-98</b>	<b>26</b>
<b>Alternative 2</b>	<b>-98*</b>	<b>26</b>
<b>Alternative 3</b>	<b>-110*</b>	<b>15</b>
<b>Alternative 4</b>	<b>-112*</b>	<b>12</b>

\* - includes Alternative 1 load reduction

# Phosphorus Reduction estimate in Lake Istokpoga

**Initial Load= 23 metric tons**

- **BMPs\*\*-**
  - Owner implemented= -2 mt
  - Cost-Share BMPs= -3 mt
  - Additional Ag BMPs= -3 mt
  - **BMPs Total= -8 mt**
- Level 1 and 2 Management Measures= -0 mt
- Remaining Alternative 1 Management Measures= -0 mt
- **Total Alternative 1 Load Reduction= -0 mt\*\***

**Load Remaining After Alternative 1= 23 metric tons**

**\*\*-** Reductions from implementing BMPs is not included in total load reduction due to buffering effects of intervening lake

# Phosphorus Reduction estimate in Lake Istokpoga

	<b>Load Reduction (mt)</b>	<b>Remaining Load (mt)</b>
<b>Alternative 1</b>	<b>-0</b>	<b>23</b>
<b>Alternative 2</b>	<b>-3*</b>	<b>20</b>
<b>Alternative 3</b>	<b>-12*</b>	<b>11</b>
<b>Alternative 4</b>	<b>-9*</b>	<b>14</b>

\* - includes Alternative 1 load reduction

# Phosphorus Reduction estimate in Indian Prairie

**Initial Load= 89 metric tons**

- **BMPs-**
  - Owner implemented= -11 mt
  - Cost-Share BMPs= -13 mt
  - Additional Ag BMPs= -9 mt
  - **BMPs Total= -33 mt**
- **Level 1 and 2 Management Measures= -4 mt**
- **Remaining Alternative 1 Management Measures= -36 mt**
- **Total Alternative 1 Load Reduction= -67 mt**

**Load Remaining After Alternative 1= 15 metric tons**

# Phosphorus Reduction estimate in Indian Prairie

	<b>Load Reduction (mt)</b>	<b>Remaining Load (mt)</b>
<b>Alternative 1</b>	<b>-67</b>	<b>15</b>
<b>Alternative 2</b>	<b>-67*</b>	<b>15</b>
<b>Alternative 3</b>	<b>-73*</b>	<b>9</b>
<b>Alternative 4</b>	<b>-68*</b>	<b>14</b>

\* - includes Alternative 1 load reduction

# Phosphorus Reduction estimate in Fisheating Creek

**Initial Load= 55 metric tons**

- **BMPs-**
  - Owner implemented= -5 mt
  - Cost-Share BMPs= -7 mt
  - Additional Ag BMPs= -3 mt
  - **BMPs Total= -15 mt**
- **Level 1 and 2 Management Measures= -0 mt**
- **Remaining Alternative 1 Management Measures= -0 mt**
- **Total Alternative 1 Load Reduction= -16 mt**

**Load Remaining After Alternative 1= 39 metric tons**

# Phosphorus Reduction estimate in Fisheating Creek

	<b>Load Reduction (mt)</b>	<b>Remaining Load (mt)</b>
<b>Alternative 1</b>	<b>-16</b>	<b>39</b>
<b>Alternative 2</b>	<b>-19*</b>	<b>37</b>
<b>Alternative 3</b>	<b>-47*</b>	<b>8</b>
<b>Alternative 4</b>	<b>-34*</b>	<b>21</b>

\* - includes Alternative 1 load reduction

# Phosphorus Reduction estimate in West Lake O Basins

**Initial Load= 1 metric ton**

- **BMPS\*\*\*-**
  - Owner implemented= -0 mt
  - Cost-Share BMPs= -0 mt
  - Additional Ag BMPs= -0 mt
  - **BMPs Total= -0 mt**
- **Level 1 and 2 Management Measures= -0 mt**
- **Remaining Alternative 1 Management Measures= -0 mt**
- **Total Alternative 1 Load Reductions= -0 mt**

**Load Remaining After Alternative 1= 1 metric ton**

# Phosphorus Reduction estimate in West Lake O Basins

	<b>Load Reduction (mt)</b>	<b>Remaining Load (mt)</b>
<b>Alternative 1</b>	<b>-0</b>	<b>1</b>
<b>Alternative 2</b>	<b>-0*</b>	<b>1</b>
<b>Alternative 3</b>	<b>-0*</b>	<b>1</b>
<b>Alternative 4</b>	<b>-0*</b>	<b>1</b>

\* - includes Alternative 1 load reduction

# Phosphorus Reduction estimate in East Lake O Basins

**Initial Load= 20 metric tons**

- **BMPs-**
  - Owner implemented= -2 mt
  - Cost-Share BMPs= -2 mt
  - Additional Ag BMPs= -2 mt
  - **BMPs Total= -6 mt**
- **Level 1 and 2 Management Measures= -7 mt**
- **Remaining Alternative 1 Management Measures= -0 mt**
- **Total Alternative 1 Load Reduction= -12 mt**

**Load Remaining After Alternative 1= 8 metric tons**

# Phosphorus Reduction estimate in East Lake O Basins

	<b>Load Reduction (mt)</b>	<b>Remaining Load (mt)</b>
<b>Alternative 1</b>	<b>-12</b>	<b>8</b>
<b>Alternative 2</b>	<b>-12*</b>	<b>8</b>
<b>Alternative 3</b>	<b>-12*</b>	<b>8</b>
<b>Alternative 4</b>	<b>-12*</b>	<b>8</b>

\* - includes Alternative 1 load reduction

# Phosphorus Reduction estimate in EAA Basins

**Initial Load= 33 metric tons**

- **BMPs (S-4/Industrial Canal only)-**
  - Owner implemented= -2 mt
  - Cost-Share BMPs= -0 mt
  - Additional Ag BMPs= -0 mt
  - **BMPs Total= -2 mt**
- **Level 1 and 2 Management Measures= -21 mt**
- **Remaining Alternative 1 Management Measures= -0 mt**
- **Total Alternative 1 Load Reduction= -21 mt**

**Load Remaining After Alternative 1= 12 metric tons**

# Phosphorus Reduction estimate in EAA Basins

	<b>Load Reduction (mt)</b>	<b>Remaining Load (mt)</b>
<b>Alternative 1</b>	<b>-21</b>	<b>12</b>
<b>Alternative 2</b>	<b>-21*</b>	<b>12</b>
<b>Alternative 3</b>	<b>-24*</b>	<b>10</b>
<b>Alternative 4</b>	<b>-24*</b>	<b>10</b>

\* - includes Alternative 1 load reduction